Forest Insect Conditions on the

Cache National Forest

1968

This report is designed to provide information on the current and future status of the important forest insect pests on the Cache National Forest. It was prepared from information collected on the annual aerial survey, from periodic on-the-ground examinations, and from evaluations prepared in years previous to 1968.

The mountain pine beetle was the only insect of consequence on the Forest in 1968. Other insect problems were observed during aerial and ground surveys, but none of these posed any significant threat to their respective plant hosts. Scattered Douglas-fir beetle activity was observed at several locations on the Forest. Groups of from one to ten dead Douglas-fir were most common; however, one patch of seventy dead trees was observed in Main Canyon east of Thatcher, Idaho. Light tent caterpillar activity on bitterbrush was encountered at several locations on the Forest. These problems and the respective areas where they were observed are shown on a copy of the aerial survey map mailed to the Forest at an earlier date.

A more specific and detailed discussion about evaluation techniques and the current mountain pine beetle situation on the Forest follows:

Mountain pine beetle, Dendroctonus ponderosae Hopk.

Several methods are employed by Regional entomologists in evaluating the future trend of mountain pine beetle populations. These evaluations have proven to be extremely difficult to formulate, and the following discussion will clarify why this is true.

The annual aerial survey is one of the important tools used in determining the mountain pine beetle population trends. Areas of tree mortality are easily observed from the air, and the information is transferred to a map. The map then serves as a permanent record of infestations, and an increase or decrease in an infestation can be observed by comparing present and past survey maps of the area in question. It should be emphasized, however, that the trend as indicated on the map is one year behind the actual situation on the ground. The beetles fly and attack green trees in July and August. These trees do not fade until the following summer; therefore, on-the-ground examinations are necessary to detect these newly attacked trees.

The data collected during ground examinations are used for predicting population trends for the following year. In the past, predictions were based solely on fall brood counts. This technique, however, did not prove satisfactory. We now place more emphasis on attack ratios and stand characteristics. Brood samples are taken, but more attention is directed toward brood characteristics than brood numbers. Attack ratios are obtained by counting the newly attacked

trees and comparing this count with that of recently killed trees or faders in the same area. Often only a few areas throughout an infestation can be ground checked. The sample is, therefore, small and an erroneous conclusion about the future trend could result due to variability within the infestation. We try to reduce the probability of error by selecting areas that appear to be most representative of the trend. Last year (1967) was the first year that we conducted our evaluations in this manner, and generally favorable results were obtained.

Stand characteristics also play an important role in predicting future population trends. Mountain pine beetle populations become epidemic only when stand characteristics are favorable for a buildup. For this reason, particular attention is paid to the number of large diameter (10-inches d.b.h. and over) green trees in a stand. The greater the percentage of large diameter trees, the greater is the possibility of a buildup.

According to 1968 aerial survey data, the majority of mountain pine beetle-caused lodgepole pine mortality was concentrated along the eastern half of the Idaho portion of the Forest. Contrary to our 1967 prediction of a general decrease in activity in this area, tree killing increased in 1968 with notable increases occurring at two locations. The first infestation center, which is the most damaging on the Forest today, is located south of Soda Springs at the head of Eight Mile Creek. An estimated 3,000 trees died in this area in 1968. The second center of activity is located west of Liberty in North and Emigration Canyons and in Copenhagen Basin. Approximately 1,500 red-topped lodgepole were observed in these areas. Additionally, static to decreasing conditions were observed at other locations in this northern area.

Tree mortality in the Utah portion of the Forest in 1968 remained at approximately the same level as in 1967. The most important center of activity is located west of Randolph in New, Pole, and Old Canyons; and in Randolph Creek. An estimated 1,000 trees were killed by the mountain pine beetle in these canyons. Other widely scattered patches of mortality were observed along the eastern boundary of the Forest from the canyons west of Randolph north to the Idaho border.

On-the-ground evaluations were conducted during the first week in October by Douglas Parker and Ezra Hookano. The findings of these evaluations follows:

Area	No. of trees observed Attacked in 1968	1967	Attack Ratio 1968	1967	Trend
Head of Eight Mile Cr.	9	29	.31	1	Decreasing
Liberty Cr.	18	3	6	1	Increasing
Old Canyon	41	31	1.3	1	Increasing

These data and other observations indicate that a general increase in lodgepole pine mortality will occur from Paris Canyon north with static conditions predicted to the south in 1969. Even though the attack ratio for the Eight Mile Creek area points toward a decreasing trend, stand characteristics are favorable for beetle activity. Tree killing should remain at about the same level in 1969 as was observed in 1968. Lodgepole pine mortality in the Copenhagen Basin-Emigration Canyon infestation increased in 1968 and will continue to increase in 1969. The infestation in the canyons west of Randolph have had a long history of mountain pine beetle activity. Lodgepole pine, Douglas-fir, subalpine fir, and aspen stands are intermixed throu hout these drainages. Mountain pine beetle populations rarely build up to catastrophic proportions in these mixed stands, and tree killing often remains at about the same level for several years. This pattern of attack has been observed over the past several years in this area and will continue in 1969.

Brood samples taken during the ground checks revealed that brood development was behind the normal situation for that time of year. Egg galleries were one to ten inches long. Eggs and small larvae were the immature stages present. Large larvae are often commonly found by the first week in October; however, none were observed this year. We do not know enough about the biology or population dynamics of the mountain pine beetle to know what the implication of this late development will mean. However, past experience has shown that this late development has little affect on population levels.

Randolph District Ranger Lewis Campbell was of the opinion that porcupine activity was responsible for the majority of lodgepole mortality in the canyons west of Randolph. Ground checks of the areas revealed that some trees had been killed by porcupine feeding. However, the majority of dead trees had been killed by the mountain pine beetle.

Under the present conditions, control is not recommended for most mountain pine beetle infestations on the Forest. However, the infestation in Old Canyon may need to be controlled. The possibility of future logging in this area should dictate control considerations. If you have any plans to log this area, they should be accelerated as soon as possible. The infestation could be suppressed by chemical treatment or felling and burning of infested trees; however, this would be only a temporary action. Our recommendation for this area can be summarized as follows: Log it as soon as possible or let the beetles take what they want.

Some protection of high-value trees in campgrounds and other high-use areas can be obtained by using a preventive spray. It should be emphasized, however, that trees must be sprayed before the beetle flight begins. The probability of saving a tree after it has already been attacked is small. We will be happy to work with you in developing treatment plans for such areas.

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